The Pakistan Development Review
45 : 3 (Autumn 2006) pp. 417–424

Tourism Promotion and Regional Development in Low-income Developing Countries

KAZUHIRO TETSU

There are not so many papers that the economic effects of tourism are examined in a general equilibrium framework. The features of those papers are that they assume that tourism is regarded as non-tradable goods and services and that tourism is consumed by not only foreign tourists but also domestic residents. However, since our purpose of this paper is to examine the economic effects of tourism promotion on low-income developing countries, we assume that most domestic residents cannot afford to consume tourism, which is considered as a luxury good. Under such assumptions, we examine the effects of two tourism promotion policies on a developing economy. The main result we obtain is that both the policies improve the standard of living for the farmers in a rural region while they worse the standard of living for the workers who are employed in an urban region.

JEL classification: F11, O12
Keywords: Tourism; Regional Development; Low-income Developing Countries

1. INTRODUCTION

Whereas some of the developing countries poor in natural resources have achieved miracle economic development, many developing countries remain poor. To achieve economic development, one of the most important things that such developing countries should pursue is to acquire foreign currency in order to import many superior goods that they cannot produce from developed countries. However, it is true that many developing countries except some developing countries rich in natural resources do not have an effective means of getting foreign currency. How can such developing countries acquire foreign currency and achieve economic development? In this paper, we analyse the role of tourism in economic development because, in some developing countries, tourism is the country's top earner of foreign currency.

For developing countries where natural resources and economic infrastructures are scarce, tourism has been considered as an ideal means for development for more than 40 years: Tourism is an ideal means of acquiring foreign currency, creating employment, and controlling rural-urban migration. Luckily many developing countries have many tourist attractions such as beautiful nature and remains of an ancient city, but they have not been

Kazuhiro Tetsu <tetu@hss.shizuoka.ac.jp> is affiliated with the Department of Economics, Shizuoka University, Ohya, Japan.

Author's Note: This research was done when I was a visiting researcher at Chulalongkorn University in Thailand. Thanks are due to the Department of Ecnoomics at Chulalongkorn University for giving me the opportunity to research in Thailand.

used enough. To utilise tourist attractions and welcome foreign tourists to the countries, the first thing that host countries have to do is to improve economic infrastructures such as international airports, accommodations and efficient domestic transportation systems. Furthermore, it is very important to keep the peace in their countries. The cost of carrying out them may be very high. However, they are also necessary for long-term economic development.

We can find easily much literature on the economic effects of tourism, but there are not many studies analysing those issues in a general equilibrium, international trade framework. In such studies using a general equilibrium model, it is assumed that tourism, which is regarded as non-tradable goods and services, is consumed by not only foreign tourists but also domestic residents.[1] Although we introduce tourism in our two-region model in the same manner as in Hazari, *et al*. (2003), we do not allow that tourism is consumed by domestic residents because our purpose of this paper is to examine the economic effects of tourism promotion in a low-income developing country where domestic residents cannot afford to consume tourism, which is considered as a luxury good.[2] The tourism promotion policies that we examine in this paper are, from the viewpoint of supply side, a policy that can attract more foreign capital to the tourism sector and, from the viewpoint of demand side, a policy that arouses demand for tourism directly. The most important result we obtain is that both the policies improve the standard of living for the farmers in a rural region while they lower the standard of living for the workers who are employed in an urban region.

The paper is divided in four sections. In the second section we show a two-region model that incorporates tourism. In the third section we will examine the effects of tourism promotion policies on factor prices, outputs, and employment. Conclusions are presented in the last section.

2. THE BASIC MODEL

Consider a low-income developing country in which there are two regions: the urban region and the rural region. In the urban region, there are three sectors: the urban industry sector, which produces a tradable good (X_1); the intermediate goods-producing sector, which produces a non-tradable good (X_2); and the tourism sector, which offers tourists a non-tradable good and service(X_3). X_1 is produced with labour, domestic capital and the intermediate good (X_2). The price of X_1 is given internationally because we consider a small open economy. X_2 is produced with labour and domestic capital. X_3 is produced with labor, foreign capital and the intermediate good (X_2). In the rural region, the agricultural sector produces a non-tradable good (X_4) with labor only.[3]

Assuming that all markets are perfectly competitive and that there are constant returns to scale, we can describe the zero profit conditions as follows:

$$\bar{p}_1 = a_{L1}\bar{w} + a_{K1}R + a_{m1}p_2 , \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (1)$$

[1]See, for example, Copeland (1991), Hazari and Ng (1993), Hazari and Kaur (1995), Nowak, *et al*. (2003), Chesney and Hazari (2003), Hazari and Nowak (2003) and Hazari, *et al.* (2003).

[2]Among the Asian countries, such low-income developing countries mean Laos, Bangladesh, and so forth.

[3]We consider X_4 as food.

$$p_2 = a_{L2}\overline{w} + a_{K2}R\,, \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (2)$$

$$p_3 = a_{L3}\overline{w} + a_k r + a_{m3}p_2\,, \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (3)$$

$$p_4 = a_{L4}w_a\,, \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (4)$$

where a_{jh} is the amount of factor j (j = L, K, k, m) used in sector h (h = 1,2,3,4) to produce one unit of the output, $\overline{w}$ is the urban wage rate, which is institutionally fixed at higher level than the prevailing wage rate, w_a, for the rural region, R is the return to domestic capital, r is the return to foreign capital and p_1,p_2,p_3,p_4 are the prices of X_1, X_2, X_3, X_4, respectively.

To sharpen focus, we assume that the amount of the intermediate good required to produce one unit of final output, a_{mh}, is fixed in each final goods-producing sector.[4] Furthermore, we assume that the domestic factors of production cannot substitute for foreign capital through this paper.[5] Finally, because of those assumptions, all input coefficients, a_{jh}, become constant in our model.

Since the tourism sector uses foreign capital instead of domestic capital, the conditions of full employment for domestic and foreign capital can be written as

$$a_{K1}X_1 + a_{K2}X_2 = \overline{K}\,, \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (5)$$

$$a_k X_3 = \overline{k}\,, \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (6)$$

where $\overline{K}$ is the endowment of domestic capital and $\overline{k}$ is foreign capital.

We assume that the intermediate good-producing sector produces the non-tradable intermediate good and supplies it to the urban industry sector and the tourism sector. Therefore, the equilibrium condition in the market for the intermediate good is shown as

$$a_{m1}X_1 + a_{m3}X_3 = X_2\,. \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (7)$$

To consider the existence of urban unemployment, we assume that labour migration between the urban region and the rural region happens à la Harris-Todaro (1970). If $\overline{L}, v$ is used in indicating the endowment of labour and the number of unemployment respectively, we obtain the following equation:

$$a_{L1}X_1 + a_{L2}X_2 + a_{L3}X_3 + a_{L4}X_4 + v = \overline{L}\,. \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (8)$$

According to the Harris-Todaro model, labour will move until the wage rate in the rural region becomes equal to the expected wage in the urban region, which includes the urban industrial sector, the intermediate goods-producing sector and the tourism sector. Therefore, the equilibrium can be written as

$$w_a(1+\gamma) = \overline{w}\,, \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (9)$$

[4]This assumption is commonly made in studies such as Batra and Casas (1973) and Jones and Spencer (1989), which deal with intermediate goods in a general equilibrium setting.

[5]In the tourism sector, since foreign capital is the most important and special factor, the domestic factors of production cannot replace it.

$$\gamma = v/(a_{L1}X_1 + a_{L2}X_2 + a_{L3}X_3), \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (10)$$

where γ means the ratio of the unemployed to the urban employed.

The equilibrium condition of supply and demand for the tourist good and service is shown as the following equation:

$$X_3 = D_3(p_3, \beta), \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (11)$$

where D_3 indicates the demand for the tourist good and service, and β means a shift parameter that the government in a developing country can operate.[6]

The equilibrium condition of supply and demand for the agricultural good is shown as the following equation:

$$X_4 = D_4(p_4, \beta) + \overline{M}, \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (12)$$

where D_4 indicates the demand for the agricultural good, and $\overline{M}$, which is assumed constant, is the domestic demand for the agricultural good.

3. THE EFFECTS OF TOURISM PROMOTION POLICIES

In this section, we will examine the effects of tourism promotion policies on a developing economy. The tourism promotion policies that we consider here are as follows: (1) a policy that can attract more foreign capital to the tourism sector; (2) a policy that arouse demand for tourism directly. We can consider, for example, the former case a reduction in various taxes and consider the latter case the implementation of an advertising campaign for attracting foreign tourists.[7]

3.1. An Increase in Foreign Capital

In this subsection, we examine the effects of an increase in foreign capital, which means the reinforcement of the supply side, on the economy.

First, by differentiating Equations (5)-(8) and (10), we get the following system:

$$\begin{pmatrix} \lambda_{L1} & \lambda_{L2} & \lambda_{L3} & \lambda_{L4} & \lambda_v \\ \lambda_{K1} & \lambda_{K2} & 0 & 0 & 0 \\ 0 & 0 & \lambda_k & 0 & 0 \\ \lambda_{m1} & -1 & \lambda_{m3} & 0 & 0 \\ \gamma\lambda_{L1} & \gamma\lambda_{L2} & \gamma\lambda_{L3} & 0 & -\lambda_v \end{pmatrix} \begin{pmatrix} \hat{X}_1 \\ \hat{X}_2 \\ \hat{X}_3 \\ \hat{X}_4 \\ \hat{v} \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ \hat{k} \\ 0 \\ 0 \end{pmatrix}, \quad \dots \quad \dots \quad \dots \quad (13)$$

where λ_{jh} is the fraction of factor j working in sector h and a caret over a variable denotes percentage change, i.e. $\hat{x} = dx/x$.[8]

[6]As we have mentioned above, we assume that only foreign tourists consume X_3.

[7]Other examples that Diamond (1977) showed are credit funds at low interest rates, investment rebates as the former case, and personnel training, a concessionary tourist rate of exchange as the latter case.

[8]Remember that all the variable input coefficients, as we have mentioned before, become constant in our model.

Solving the above system with Cramer's rule, we obtain

$$\hat{X}_1 = -\lambda_{L4}\lambda_{K2}\lambda_v\lambda_{m3}\hat{k} / \Delta_k , \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (14)$$

$$\hat{X}_2 = \lambda_{L4}\lambda_{K1}\lambda_v\lambda_{m3}\hat{k} / \Delta_k , \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (15)$$

$$\hat{X}_3 = \lambda_v\lambda_{L4}(\lambda_{K1} + \lambda_{K2}\lambda_{m1})\hat{k} / \Delta_k , \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (16)$$

$$\hat{X}_4 = -(\gamma + 1)\lambda_v\{\lambda_{K1}(\lambda_{L3} + \lambda_{m3}\lambda_{L2}) + \lambda_{K2}(\lambda_{m1}\lambda_{L3} - \lambda_{m3}\lambda_{L1})\}\hat{k} / \Delta_k , \quad \ldots \quad (17)$$

$$\hat{v} = \gamma\lambda_{L4}\{\lambda_{K1}(\lambda_{L3} + \lambda_{m3}\lambda_{L2}) + \lambda_{K2}(\lambda_{m1}\lambda_{L3} - \lambda_{m3}\lambda_{L1})\}\hat{k} / \Delta_k , \quad \ldots \quad \ldots \quad (18)$$

where $\Delta_k = \lambda_v\lambda_{L4}\lambda_k(\lambda_{K1} + \lambda_{K2}\lambda_{m1}) > 0$ is the determinant of the above system.

From the above solution, we can show the following proposition:

Proposition 1. An increase in foreign capital inflow to the tourism sector affects the economy in the developing country as in the following table.[9]

Numerator / Denominator	dX_1	dX_2	dX_3	dX_4	dv	dp_2	dp_3	dp_4	dw_a
dk	<0	>0	>0	<0*	>0*	=0	<0	>0*	>0*

To obtain the results marked with an asterisk, we must assume the condition, $\lambda_{L1} / \lambda_{m1} < \lambda_{L3} / \lambda_{m3}$ or $\lambda_{L1} / \lambda_{K1} < \lambda_{L2} / \lambda_{K2}$.[10]

The economic interpretation of the above result is as follows. First, because of an increase in foreign capital, the tourism sector attracts labor from the other sector, and the intermediate good from the intermediate goods-producing sector. As a result, the output in the tourism sector expands. Because of an increase in demand for the intermediate good, the intermediate goods-producing sector attracts labor from the other sector, and domestic capital from the urban industry sector. Consequently, this sector increases the output. In the urban industry sector, which releases labour and domestic capital, the output decreases. If the intermediate goods-producing sector or the tourism sector is labor intensive relative to the urban industry sector, an increase in foreign capital increases the probability that labor will be employed in the urban region, and thus the expected wage in this region rises. As soon as workers in the rural region obtain the information, they try to migrate to the urban region. As a result, the output in the agricultural sector decreases and urban unemployment increases. Finally, the price of X_3 in the tourism sector falls because supply of X_3 increases in spite of the unchanged demand for X_3.

[9]By using Equations (2), (4),(11)and (12), we obtain the sign of dp_2/dk, dp_3/dk, dp_4/dk and dw_a/dk.

[10]We define the condition, $\lambda_{L1} / \lambda_{m1} < \lambda_{L3} / \lambda_{m3}$ or $\lambda_{L1} / \lambda_{K1} < \lambda_{L2} / \lambda_{K2}$, as follows: when the condition is satisfied, the intermediate goods-producing sector or the tourism sector is said to be labour intensive relative to the urban industry sector.

3.2. An Increase in Foreign Tourists

In this subsection, from the demand side, we examine the effects of a tourism promotion policy on the economy.

Suppose that a government agency implements an advertising campaign to attract foreign tourists. A rise of parameter β means the success in it. By differentiating Equations (5),(7)-(10) and (12) to examine the effects of a change of parameter β on the economy, we obtain the following matrix system.[11]

$$\begin{pmatrix} \lambda_{K1} & \lambda_{K2} & 0 & 0 & 0 & 0 \\ \lambda_{L1} & \lambda_{L2} & \lambda_{L4} & 0 & 0 & \lambda_v \\ \lambda_{m1} & -1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1+\gamma & \gamma & 0 \\ (\gamma/v)\lambda_{L1} & (\gamma/v)\lambda_{L2} & 0 & 0 & 1 & -1 \\ 0 & 0 & 1 & \eta_{4p_4} & 0 & 0 \end{pmatrix} \begin{pmatrix} \hat{X}_1 \\ \hat{X}_2 \\ \hat{X}_4 \\ \hat{p}_4 \\ \hat{\gamma} \\ \hat{v} \end{pmatrix} = \begin{pmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ \eta_{4\beta}\beta \end{pmatrix}, \quad \dots \quad \dots \quad (19)$$

where η_{4p_4} is the price elasticity of demand for X_4, $\eta_{4\beta}$ is the elasticity of demand for X_4 with respect to parameter β.

The above system can be solved with Cramer's rule. The solution of the system yields:

$$\hat{X}_1 = 0 \ , \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (20)$$

$$\hat{X}_2 = 0 \ , \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (21)$$

$$\hat{X}_4 = -(1+\gamma)\eta_{4\beta}\lambda_v(\lambda_{K1}+\lambda_{K2}\lambda_{m1})\hat{\beta}/\Delta_\beta \ , \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (22)$$

$$\hat{p}_4 = -\gamma\eta_{4\beta}\lambda_{L4}(\lambda_{K1}+\lambda_{K2}\lambda_{m1})\hat{\beta}/\Delta_\beta \ , \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (23)$$

$$\hat{v} = (1+\gamma)\eta_{4\beta}\lambda_{L4}(\lambda_{K1}+\lambda_{K2}\lambda_{m1})\hat{\beta}/\Delta_\beta \ , \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (24)$$

Where $\Delta_\beta = -\lambda_{K1}\lambda_{L4}\gamma\eta_{4p_4} - (1+\gamma)\lambda_{K1}\lambda_v - \lambda_{K2}\lambda_{L4}\lambda_{m1}\gamma\eta_{4p_4} - (1+\gamma)\lambda_{K2}\lambda_{m1}\lambda_v < 0$ is the determinant of the system.

From Equation (11), we obtain

$$-\eta_{3p_3}\hat{p}_3 + \eta_{3\beta}\hat{\beta} = \hat{k} \ , \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (25)$$

where η_{3p_3} is the price elasticity of demand for X_3, $\eta_{3\beta}$ is the elasticity of demand for X_3 with respect to parameter β. In this subsection, since we assume that $\hat{k} = 0$, we get $\hat{p}_3/\hat{\beta} > 0$ from the above equation.

Finally, from the above analyses, we can show the following proposition:

[11] From Equation (6), if $\hat{k} = 0$ we obtain $\hat{X}_3 = 0$.

Proposition 2. If the developing country succeeds in attracting foreign tourists, it affects the economy as in the following table.[12]

Numerator / Denominator	dX_1	dX_2	dX_3	dX_4	dv	dp_2	dp_3	dp_4	dw_a
$d\beta$	=0	=0	=0	>0	<0	=0	>0	>0	>0

The economic interpretation of the above result is as follows. An increase in foreign tourists affects not only the tourism sector but also the agricultural sector. In the tourism sector, while demand for X_3 increases because of an increase in foreign tourists, supply of X_3 does not increase because the amount of foreign capital does not change. Therefore, the price of X_3 rises. In the agricultural sector, because an increase in foreign tourist leads to an increase in demand for the agricultural good, the output of this sector expands, and the price of the agricultural good and the wage rate in this sector rise. A rise in the wage rate attracts labour in the pool of urban unemployment to the agricultural sector. As a result, the number of the urban unemployed reduces. An increase in foreign tourists does not affect production in the urban industry sector and the intermediate goods-producing sector. Because an increase in foreign tourists does not affect production in the tourism sector as we have mentioned before, its effect does not extend to those sectors.

4. CONCLUSIONS

In this paper, we examined the effects of two policies for tourism promotion on a developing economy and the following results were obtained: (1) the first policy, which means attracting more foreign capital to the tourism sector, raises the price of X_4 and the wage rate in the rural region, and moreover, it increases urban employment; (2) the second policy, which means the implementation of an advertising campaign for attracting foreign tourists by a government agency, raises the price of X_4 and the wage rate in the rural region, but it decreases urban unemployment; (3) both of the policies can increase national income.

In addition, we examined the change of the standard of living for workers. In the first policy, because a foreign capital inflow to the tourism sector attracts labour from the rural region to the urban region, marginal productivity of labor in the rural region rises, and thus the wage rate in this region rises. In the second policy, because an increase in foreign tourists raises demand for X_4 and then raises the price of X_4, the wage rate in the rural region rises. In both cases, the standard of living for the farmers in the rural region becomes better because the rise in the wage rate in the rural region exceeds that of the price of X_4, but the standard of living for the workers who are employed in the urban region deteriorates because the price of X_4 rises though the wage rate in the urban region is fixed. Finally, it follows from what has been said above that the tourism promotion policies which aim at economic development ameliorate the standard of living in the agricultural sector at the cost of that in the other sectors.

[12]By using Equations (2),(4),(6), and (11), we obtain the sign of dX_3/dk, dp_2/dk, dp_3/dk and dw_a/dk.

REFERENCES

Batra, R. N., and F. R. Casas(1973) Intermediate Products and the Pure Theory of International Trade: A Neo-Heckscher-Ohlin Framework. *American Economic Review* 63, 297–311.

Chesney, M., and B. R. Hazari (2003) Illegal Migrants, Tourism and Welfare: A Trade Theoretic Approach. *Pacific Economic Review* 8, 259–268.

Copeland, B. R.(1991) Tourism, Welfare and De-Industrialisation in a Small Open Economy. *Economica* 58, 515–529.

Diamond, J.(1977) Tourism's Role in Economic Development: The Case Reexamined. *Economic Development and Cultural Change* 25, 539–553.

Harris, J. R., and M. Todaro (1970) Migration, Unemployment and Development: A Two-Sector Analysis. *American Economic Review* 60, 126–142.

Hazari, B. R., and C. Kaur (1995) Tourism and Welfare in the Presence of Pure Monopoly in the Non-traded Goods Sector. *International Review of Economics and Finance* 4, 171–177.

Hazari, B. R., and A. Ng (1993) An Analysis of Tourists' Consumption of Non-traded Goods and Services on the Welfare of the Domestic Consumer. *International Review of Economics and Finance*, 2, 43–58.

Hazari, B. R., and J. J. Nowak (2003) Tourism, Taxes and Immiserisation: A Trade Theoretic Analysis. *Pacific Economic Review* 8, 279–287.

Hazari, B. R. J. J. Nowak, M. Sahli, and D. Zdravevski (2003) Tourism and Regional Immiserisation. *Pacific Economic Review* 8, 269–278.

Jones, R. W., and B. J. Spencer (1989) Raw Materials, Processing Activities and Protectionism. *Canadian Journal of Economics* 22, 469–486.

Nowak, J. J., M. Sahli, and P. M. Sgro (2003) Tourism, Trade and Domestic Welfare. *Pacific Economic Review* 8, 245–258.

Oppermann, M., and K. S. Chon (1997) *Tourism in Developing Countries.* International Thomson Business Press.